

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of the claims in the application:

- 1 1. (Currently Amended) A proximity detector, comprising:
 - 2 a magnetic-field-to-voltage transducer for providing a magnetic field signal indicative of
 - 3 an ambient magnetic field;
 - 4 a peak detector responsive to said magnetic field signal for providing a tracking signal
 - 5 which substantially follows at least a portion of said magnetic field signal, wherein said peak
 - 6 detector comprises:
 - 7 a first digital-to-analog converter for providing a first output signal having a first
 - 8 step size;
 - 9 a second digital-to-analog converter for providing a second output signal having a
 - 10 second step size larger than said first step size; and
 - 11 a summation circuit coupled to said first and said second digital-to-analog
 - 12 converters for providing said tracking signal as a sum of said first and said second output
 - 13 signals, wherein said tracking signal is controlled to include steps associated with the first
 - 14 step size when said magnetic field signal varies from said tracking signal by less than a
 - 15 predetermined amount and to include larger steps associated with the second step size
 - 16 when said magnetic field signal varies from said tracking signal by more than the
 - 17 predetermined amount.
- 1 2. (Currently Amended) The proximity detector of Claim 1, further including a too-far-behind comparator for providing a too-far-behind signal which changes state when said magnetic field signal varies from said tracking signal by ~~a~~the predetermined amount, wherein said tracking signal is controlled in response to said too-far-behind signal to include steps associated with the first step size when the too-far-behind signal is in a first state and to include larger steps associated with the second step size when the too-far-behind signal is in a second state.

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1 3. (Original) The proximity detector of Claim 2, wherein said peak detector further comprises:
2 a first counter for providing a first count signal to said first digital-to-analog converter;
3 and
4 a second counter for providing a second count signal to said second digital-to-analog
5 converter.

1 4. (Previously Presented) The proximity detector of Claim 3, wherein in response to the first
2 state of said too-far-behind signal said second counter is stepped in association with a terminal
3 count of said first counter, and in response to the second state of said too-far-behind signal said
4 second counter is also stepped.

1 5. (Original) The proximity detector of Claim 2, wherein said too-far-behind comparator is
2 responsive to an offset signal that differs from said magnetic field signal by an offset amount.

1 6. (Currently Amended) The proximity detector of Claim 1, further including a POSCOMP
2 comparator for providing a POSCOMP signal, which changes state when said magnetic field
3 signal varies from said tracking signal by a second predetermined amount, wherein at least one
4 of said tracking signal or said magnetic field signal is forced towards the other one of said
5 tracking signal or said magnetic field signal in response to changes in state of said POSCOMP
6 signal.

1 7. (Currently Amended) The proximity detector of Claim 6, wherein said POSCOMP
2 comparator is responsive to a threshold signal that differs from said tracking signal by the
3 seconda predetermined amount.

1 8. (Original) The proximity detector of Claim 6, wherein said tracking signal is brought to
2 substantially the same level as said magnetic field signal in response to changes in state of said
3 POSCOMP signal.

1 9-19. (Canceled)